
Reports on Discussion Groups

Preventive Health Services: the Physician's Role

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Preventive health services, as defined in "Promoting Health/Preventing Disease: Objectives for the Nation," encompass periodic health examinations, immunizations, screenings, and other services of the health care system directed at maintaining and improving health. In general, these services are more directly linked to traditional provider roles than many of the activities subsumed under "health promotion" or "health protection." Nonetheless, distinctions between the physician's role in preventive health services and in health promotion are not always apparent, and the discussion of the work group reflected the inevitable overlap between the two. The following major issues were addressed:

- physicians' attitudes, knowledge, and skills
- essential preventive services
- the impact of specialty practice
- the effect of reimbursement policies
- the role of nonphysician providers
- communitywide prevention
- the reinforcement of skills and practice through examination.

General Discussion

As a starting point for a discussion of the physician's role in prevention, the work group addressed the question, What do we want the characteristics of the "undifferentiated" physician to be? These characteristics were classified in terms of the attitudes, knowledge, and skills that are desirable in a prevention-oriented practice. Although knowledge and skills may be specific to the provision of certain services, it was agreed that a single set of physician attitudes also can be identified that should underlie prevention practice in all its forms. These attitudes include

- a belief in the value of preventive efforts to promote good health
- a sense of responsibility as a physician to practice disease prevention and health promotion
- a humanistic approach to patient care
- a concern for communitywide prevention efforts and a willingness to assume a leadership role in such efforts
- a willingness to persevere in prevention efforts despite frustrations or failures with individual patients
- an active preventive approach in encounters with all patients
- a belief in the value of continuity of care.

The opinion was expressed that the first year medical student usually has many of these attitudes, which may have contributed to the student's decision to enter medicine. However, during the course of medical education many students lose this preventive perspective on medicine.

The knowledge base of the prevention-oriented physician will include an understanding of the many factors contributing to the disease process and of the range of intervention strategies possible before the onset of that process. These broad areas of knowledge cover a number of more specific topics such as epidemiology, health-risk assessment, environmental and lifestyle hazards, the medical provider's roles in preventive intervention, behavior modification techniques, and the community and nonmedical resources for prevention efforts. The physician should also have an understanding of professional self-limitations and be able to direct patients to other services if needed.

The application of this knowledge will depend on the form of preventive intervention that is appropriate for the individual or group being targeted. To provide preventive health services, basic clinical skills in screening, examination, and assessment are required. In addition, both verbal and nonverbal communications skills are essential for effective interaction with patients and other health professionals. The ability to use counseling and behavior modification techniques is also helpful in the provision of both primary and secondary

preventive services, from prenatal care for expectant mothers to controlling high blood pressure and diabetes.

The distinction between preventive health services and health promotion is in many respects artificial and should not be carried over into practice in such a way that the delivery of care is fragmented. That is, the physician should be as prepared to help a patient overcome harmful habits as to prescribe antihypertensive medication, although the prevention effort may require referral of the patient to other providers for additional services.

A number of efforts have been made to identify the essential preventive health services that people should receive at each life stage. The specific services appropriate at each age and the periodicity for providing them are in some cases open to debate, but the general types of services to be provided are history taking, physician examination, evaluation of laboratory and other diagnostic procedures, risk assessment, prescription of appropriate measures, and counseling.

An important influence on physician practice patterns is reimbursement by public and private insurers for services. However, many of the basic preventive services that the work group participants discussed are not presently reimbursable under health insurance plans geared to cover major medical expenses. Some experimental programs are testing the effect of providing a basic preventive package as part of standard coverage, but this practice is not common. Concern about cost containment may produce a reluctance among insurers—and policyholders—to expand coverage despite the long-term benefits that may result.

The participants had suggested that physicians need to have good communication skills and know how to use behavior modification techniques to encourage patients to make needed lifestyle changes. Also, other health care providers, as well as professionals in other fields, may have in-depth training and skills that can effectively reinforce the physician's counseling. Awareness of the availability of these resources and knowledge of how to use them are essential elements of good prevention practice.

Although physicians share their role in prevention with their nonphysician associates, some prevention services are provided only by physicians. It is up to the physician, for example, to determine the timing of certain screenings and other services. Nevertheless, the physician's monitoring of possible risk factors must be combined with a commitment to follow through systematically so that the person at risk will receive needed support services from the appropriate provider, friend, or family member.

Opinions differed as to the roles in prevention of general and family practitioners as compared with specialists such as oncologists, nephrologists, or cardiologists. Some of the panel discussants expressed the belief that in many cases, prevention is merely a secondary concern of the highly specialized physician. Also, since most visits to specialists occur when a health problem already exists, these encounters may be more suited to secondary than primary prevention. Primary care physicians usually have the most contacts with the healthy population, particularly children and young people. Therefore they are the physicians who have the greatest opportunity to help patients avoid future problems. Regardless of which physicians assume the greatest role in primary prevention, the discussants agreed that each physician needs to have the knowledge and skills to support the preventive interventions appropriate to his or her area of practice.

What is the physician's role in prevention beyond the physician-patient relationship? The discussants agreed that physicians should be committed to community service in order to help prevent health problems and promote the population's health. Thus, as responsible practitioners, they need in their practice a knowledge of epidemiology and of the community where that practice is located. As acknowledged leaders in the health care field, they can do much to insure that prevention becomes a community priority and is given adequate attention in public and private health care facilities, schools, workplaces, and other community locations where prevention-related activities can be carried out. The actual provision of many of these preventive services, however, does not require the direct involvement of the physician. Nurse practitioners, health educators, and other nonphysician providers have been trained to perform many prevention-related tasks and, in some cases, may perform them far more effectively than the physician. Voluntary health organizations also have a significant role to play in prevention. For example, since the American Red Cross conducts high blood pressure screenings as well as providing other preventive services, its local chapters are important community resources for prevention.

Physicians can assist in outreach to schools by working with the physical educator and health educator who seeks to mount preventive programs or by participating in media events. Medical students, in particular, can gain from teaching health concepts and practices to school children. In fact, as one participant pointed out, the long-term objective of medicine should be to keep people out of physicians' offices, and the community, rather than the medical school, may be the best place to demonstrate this objective to students.

The medical school experience was considered by some participants to have shifted the attitudes and interests of medical students away from prevention and toward a single-minded focus on healing. The current stars of medical school faculties, it was stated, tend to be celebrated surgeons and internists rather than prevention-oriented primary care practitioners.

One strategy that was suggested for countering this disease-oriented focus would be to introduce more prevention material into examinations, both those required in medical school and those that must be taken in order to be licensed and certified. Medical school students naturally give more attention to material in which they are required to demonstrate knowledge and understanding. The Federal Licensing Examination (FLEX) of the National Board of Medical Examiners currently contains some items on prevention, but more could be added. Examinations for specialty certification could also be a means of motivating physicians to put more emphasis on prevention topics in their preparation for specialty practice. Knowledge of prevention, of course, does not assure a prevention-oriented practice, but it is an important prerequisite. Inclusion of a substantial prevention component in any of the required examinations would go far toward stimulating student interest in learning this material and toward assuring that a greater proportion of the medical school faculty would concentrate on this element of their disciplines.

Areas for Future Emphasis

The work group perceived its primary task to be the identification of the characteristics that prevention-oriented physicians should possess. Once these char-

acteristics were identified, the stage was set for discussion of the objectives and content of medical education. To instill in all physicians the characteristics identified by the discussants and to address the other issues the discussants raised would place new demands on medical education at both the undergraduate and graduate levels. These demands would require medical education to:

- prepare physicians to provide patients with a reward system to encourage their compliance with prescribed regimens and recommended lifestyle changes
- advocate a humanistic, patient-centered approach to medical practice
- provide role models of prevention-oriented practice
- assign a high priority to the prevention component of medicine as practiced by all specialties
- equip physicians with the communications and counseling skills needed to assist patients in adopting health-promoting behaviors
- instill an awareness of the community as client and a sense of responsibility to promote the health of the community
- promote an understanding of, and interest in, epidemiology, biostatistics, and other prevention research tools
- instruct physicians in the resources available through other health professionals and the community to supplement the physician's own prevention efforts
- emphasize risk-assessment skills and the concept of relative risk
- prepare all physicians to provide basic preventive services.

Health Protection: the Physician's Role

Kent W. Peterson, MD

Discussions within this work group clustered around the following major issues:

- the identification of appropriate health protection activities that might be addressed by physicians
- the constraints on greater physician involvement in health protection efforts
- the incentives that might be used to increase physician involvement in health protection
- the identification of curricular junctures at which medical education might incorporate instructional elements related to health protection

- the role of health protection as a speciality area within preventive medicine, including the need for additional research.

General Discussion

The work group participants considered the current and potential roles of practicing physicians vis-a-vis prevention, with particular focus on health protection activities. National priorities in the areas of toxic agent control, occupational safety and health, accident prevention and injury control, fluoridation and dental health, and surveillance and control of infectious diseases were put before the group as a frame of reference for discussion of the skills, activities, and attitudes physicians need in order to play meaningful roles in health protection. Group participants acknowledged

that these five areas represent a constellation of population-related activities that take the physician out of a purely office-based role. Health protection demands the physician's recognition of the health needs of the broader community, rather than the individual, and requires physician intervention suited to those broader needs. Pertinent examples given included physicians' participation in debate on such issues as nuclear power, clean air and water, fluoridation, and use of airbags versus seat belts. Acceptance of the belief that the physician has a societal role was identified as an important educational objective for all medical students.

The work group's efforts were directed toward identifying desired practice competencies. Perceiving the community or other defined populations as the patient, the physician should be able to take appropriate steps to protect health in that community. This concept relates closely to the physician's ability and willingness to ask questions within the clinical encounter that may reveal problems of environmental exposure or the environmental aspects of other health problems. Careful taking of the occupational health history was emphasized as the most important means of identifying health risks to which patients are vulnerable. As the first person to make clinical observations and posit causal associations, the practicing physician is viewed as fundamental to epidemiologic detection and surveillance. Beyond simply taking an occupational history, the physician must be able to look at any recurring observations from a community perspective and know what action to take. A common example is an observed high incidence of dental caries associated with a community's need for fluoridation of its water supply. The practicing physician must be able to recognize which diseases are reportable and know how and why such reporting is useful and to whom the diseases should be reported (for example, to public health departments, the Environmental Protection Agency, and so forth).

Discussion participants indicated that the practicing physician needs to have some ability to understand and become involved in the formulation of public health programs, to be aware of what public health authorities can do, and to make proper referrals. Another inherent role of the physician is that of enlightened citizen, that is, someone who is knowledgeable and concerned about the environment and potential threats to it. The practicing physician should speak to community groups and legislators as an advocate of the public good. Physicians can be effective either individually or collectively in tackling community problems that fall outside of the direct clinical context. However, responsibility for the social good cannot be

transferred entirely to physicians. There was general agreement that health protection is primarily a responsibility vested in organized systems such as private industry and government. Clean water and safe workplaces are a shared responsibility. The work group did not define the role of the medical community in facilitating interventions not directly related to medical practice, such as legislation. It was admitted that in adhering to the traditional clinician role, physicians sometimes do not become involved in certain aspects of health protection simply because they do not know what to do.

A medical student participant pointed out that students are not being trained to consider that as physicians they will have a responsibility for actively addressing the health protection needs of their patients or their communities. Rather, medical students are conditioned to wait passively for symptomatic patients to walk in the door. It was generally agreed that a medical student's development of professional identity has as much to do with the role models that he or she sees as with actual curriculum content, and that preventive medicine role models are not widely available. Faculty and clinician interest in prevention and health protection must be demonstrated in order to evidence their importance. To include health protection in the medical students' education would mean alteration of many aspects of the present model of patient care that forms the basis for that education. Such a change would be difficult, especially in the absence of economic or career advancement incentives. The absence of such rewards militates against physician and faculty recognition of preventive medicine responsibilities and was identified as a major impediment to educational enhancement of physician performance so far as health protection is concerned. Medical schools, it was noted, seldom constitute healthful environments.

The issue of role models also raised the question of the commitment to health on the part of the medical profession. If the profession is to project the importance of prevention to the public, widespread concern for positive health behavior must be a part of the professional image. In this connection, studies have shown that physicians can be important motivators for patients to change their unhealthful behaviors. On an individual level, physician example and counsel can help patients to become more aware of the need for taking better care of themselves. However, physicians commonly have difficulty in fostering this attitude because they themselves have been conditioned to assume primary responsibility for the patient's well-being, and this responsibility is often exaggerated beyond the point of benefit to the patient.

As for improving the health protection provided by currently practicing physicians, knowledge of appropriate interventions is clearly needed. Some discussants perceived a resistance among physicians to the concept of regulation. Insofar as many health protection activities are dependent on regulation and related action by employers, organized providers of health services, and government agencies, this situation was viewed as a constraint on more active physician involvement in these activities.

It was suggested that better data are needed—for example, on the incidence of birth defects, traumatic injury, and coronary heart disease. Also, better reporting systems, such as birth defect registries, would encourage physicians to become more consistent in reporting and tracking certain diseases, filling out death certificates, and so forth. Because it is difficult for physicians in private practice to possess adequate knowledge of, and to set aside adequate time to keep up with, the myriad problem characteristics of their patient populations, concern about the physician's practice organization was expressed. To cope with an increasingly complex scientific base, highly organized information systems may be the most effective.

The physician's style of practice and specialty area also make a difference. Preventive medicine specialists and primary care physicians (internists, pediatricians, obstetricians, gynecologists, and family physicians) have a more prominent role in one-on-one protection than other physicians. Potential linkages of health protection issues with specialty areas included lead poisoning in children with pediatrics, chemical contact with dermatology, occupational stress with psychiatry, chronic obstructive pulmonary disease aggravated by air pollution with internal medicine, laboratory exposures with pathology, X-ray exposure with radiology, and traumatic injury with emergency medicine.

In general, large multi-specialty group practices with health education units and effective data systems provide the type of practice organization that can best address the diverse and complex health protection needs of entire communities. Additionally, practice settings such as health maintenance organizations offer the needed economic incentives to provide health protective care. The fact that health protection problems often require physician action outside a direct clinical context—perhaps even necessitating collective action within a community—was viewed as another disincentive to physician involvement.

In terms of what all physicians should know about health protection, it was noted that a complex and distinct body of scientific knowledge does exist. However, more research is needed in this dimension of

medicine. Although there are thousands of toxic agents, gaps in scientific knowledge exist as to how to deal with them. More data are needed on the specific adverse effects of low-level exposures to chemicals and other agents over long periods. Also, more research to identify hazards will ensure more appropriate control measures.

All medical students need to learn to critically assess medical literature. As physicians, they will constantly have to make decisions under uncertain conditions. The ability to review evidence, delineate options, and make judgments based on evaluations of the evidence is a critical component of medical education and one that can be well illustrated in relation to health protection. Generic competencies such as analytic ability and skills in taking an occupational history should be developed in the undergraduate years. Students will learn to apply these skills, that is, to look for, identify, refer, and treat disease states associated with toxic agents, the worksite, and so forth by being exposed to this information in medical school and especially within their clinical training. The belief was expressed that case studies of problems of environmental exposure, such as lead poisoning in the children of battery workers, would be helpful.

The discussants viewed the identification and management of the environment and the health protection aspects of a specific patient's clinical problem as valuable training for clinicians. The experience gained in identifying an index case, making an epidemiologic hypothesis, and reporting the case to the plant, county, environmental protection group, or other appropriate authority is a recommended model for learning health protection skills. Skills in patient education, such as being able to discuss the possible workplace etiology of disease, risks versus hazards, and so forth must also be developed within the clinical years.

Interdisciplinary or conjoint undergraduate and postgraduate teaching was suggested so that the diagnostic acumen to identify diseases related to occupational and environmental hazards would be consistently reinforced.

Additional curricular junctures for introducing health protection instruction might include biochemistry, physiology, anatomy, and histology. Onsite observation of various ways of providing health care to industrial or other types of workers was further suggested as an optimal educational experience. Other kinds of educational experiences that would help physicians play a more active health protection role would entail interaction with other personnel such as industrial hygienists and public health nurses. Skill is needed in knowing who the available resource people are so that the most

appropriate referrals will be made.

Work group members emphasized the need for recognition of preventive medicine as an area of specialization as well as an area of general knowledge. Teaching the concepts of disease prevention and health protection to all medical students will not provide complete assurance of improved health protection. Since the 1950s, preventive medicine has been a recognized medical specialty, but few residency programs in the specialty exist at medical schools, and surveys have shown that most medical students are unaware of preventive medicine as a possible specialty choice. The four specialty areas of occupational medicine, public health, aerospace medicine, and general preventive medicine are all concerned with health protection, but occupational medicine is the primary specialty most closely related to it. A September 1980 report of the Graduate Medical Education National Advisory Committee projected preventive medicine, and especially occupational medicine, as one of the areas of greatest physician shortage in the coming years. This situation was viewed as another important reason for introducing medical students to the field of preventive medicine early in their medical education, since their later choice of specialization would undoubtedly be related to the presence or absence of exposure to role models and to their knowledge of the preventive medicine field.

Areas for Future Emphasis

In summary, group participants made the following recommendations and observations about physician involvement in health protection:

- All medical students should be trained at the undergraduate level in the basic principles of analytical rea-

soning, quantitative decision-making, and use of rules of evidence.

- All medical students should be skilled in the taking of occupational histories and the identification of the potential involvement of environmental factors in illness or injury. The clinical years are best suited to emphasize the importance of this content.
- All medical students should be exposed to the importance of their health protection role and to the specific kinds of resources available to them.
- Better curriculum components are needed in the areas of toxic agent control, occupational safety and health, accident prevention and injury control, fluoridation and dental health, and the surveillance and control of infectious diseases.
- Actively involved and interested faculty and clinician role models are needed to help students develop an awareness of, interest in, and an aptitude for, disease prevention and health protection.
- Incentives, beyond that of personal satisfaction, are needed to induce practicing physicians, faculty, and students to become more involved in health protection. Economic incentives were most frequently suggested, along with the experience of positive personal health as a frame of reference.
- Although a distinct body of scientific knowledge constitutes the basis for health-protection specialty areas (for example, occupational medicine) within preventive medicine, more research is needed into the long-term consequences of various low-level environmental exposures. As a medical specialty, preventive medicine should foster this research and translate the results into improved personal and public health.

Health Promotion: the Physician's Role

Marvin R. Dunn, MD

The work group addressed the following major topics related to the role of the physician in health promotion:

- The health promotion needs of the patient
- The health promotion capabilities of the physician
- The effectiveness of the physician as counselor
- The physician as a role model in health promotion

- The triage function in health promotion: use of ancillary personnel in the clinic
- The triage function in health promotion: links with community activities
- The constraints of the reimbursement system on health promotion.

General Discussion

Work group members were asked to identify the skills, activities, and attitudes of physicians that would help achieve our national priorities in the areas of smoking avoidance or cessation, avoidance of misuse of alcohol

and drugs, good nutrition, physical fitness and exercise, and the control of stress and violent behavior. There was general agreement that although it is difficult to focus on health promotion to the exclusion of prevention or protection, helping people to adopt healthy lifestyles is a concern for both current and future health care providers.

The health promotion needs of the patient may extend from inducement to reverse lifelong bad habits such as smoking, thereby mitigating further health damage, to the provision of simple information on exercise or diet that may enhance the patient's overall health. To improve one's health, a person needs knowledge of the potentially harmful effects on the human body of certain habits or substances as well as the motivation to give up or avoid these habits or substances. The person's reward, of course, is the achievement of better health habits and, ultimately, better health.

Consideration of the health promotion capabilities of the physician stimulated lengthy discussion about the attitudes that the physician should have. The most basic attitude, it was decided, is a belief in and commitment to the worth of all persons and to the goal of good health for everybody. The physician's acknowledgement and acceptance of differing lifestyles must not undermine or limit his or her responsibility to intervene in those lifestyles for the benefit of the patient. Physicians must also believe in their competence in promoting health within the community as well as within the lives of individual patients. In addition to being aware of the benefits that can accrue from health promotion, the physician needs to be aware of the limits of current medical and scientific knowledge.

The consensus that physicians need such attitudes in respect to health promotion has implications for the education of physicians. Medical students should be taught to examine the lifestyle and environmental factors associated with particular problems of patients and then to actively work toward ameliorating these problems. Awareness of people's ethnic and economic differences is also important. Medical students should be shown a variety of workplace, home, and school environments and helped to understand the health care problems associated with each. Insofar as the physician-patient relationship carries with it an obligation to care for people in terms of their entire lives, the emphasis in medical education should be on relating a patient's history and physical examination results to major issues of health promotion. Medical school programs in which students would learn how to promote their personal health, such as how to cope with stress, were viewed as potentially effective in this regard.

Members of the work group differed widely as to how much responsibility for health promotion should be placed on physicians. Since physicians are highly influential as patient counselors and motivators, a few words of advice from them will often have substantial impact, and offering such advice or support is an appropriate role for a physician. Some work group participants expressed the belief that physicians have a primary social responsibility for intervention in patients' lives. Others asserted that physicians should not attempt to "intrude;" instead, patients should be referred to other health professionals or to self-help groups. The work group envisioned that most health-promotion-minded physicians would take advantage of teachable moments with patients, seeking to identify preventable problems, providing information and advice, making referrals to other resources, participating in community activities geared to health promotion and disease prevention, and assuming leadership to advocate public policy change where necessary.

The physician-patient encounter is the "point of sale" for health promotion, and as such, the physician must be prepared to recognize and maximize these opportunities to convey information. For example, in prescribing antihypertensive medication, the physician might also recommend specific lifestyle changes. In physician-patient encounters, the physician can also gather information that will be useful in broader health promotion efforts. A physician, by acting as an epidemiologist within his or her own practice or within a group practice (an action that would entail setting up recordkeeping systems to identify all hypertensives, diabetics, and so forth), can stimulate the formation of self-help groups or information exchange among persons with similar health concerns.

In the most comprehensive view of the physician's role as health promoter, physicians would need to develop and exercise their skills as counselors and educators. The work group deemed it essential that physicians express confidence in the benefits of health promotion, both for their patients and for the community. Beyond this expression of confidence, however, some disagreement arose concerning the extent to which physicians should function as counselors. It was noted that to actively practice health promotion, some physicians need more knowledge of behavioral change. Smoking cessation was taken as a case in point. Physicians have to be prepared to help patients break lifelong habits, to advise them against beginning or continuing essentially unhealthy addictive behaviors, and to encourage them to adopt behaviors that promote health. A major impediment cited was that we do not have sufficient current knowledge to make recommen-

dations about all aspects of lifestyle that affect health. This objection, however, was countered by the assertion that a lag always exists between initial observation of causation and final proof. What must be carefully avoided, it was agreed, is an overreaction to recent scientific findings. Such overreaction could result, for example, in counseling every patient on the merits of a particular behavior like marathon running, or similarly, in recommending—on the basis of a few studies in which moderate drinking was found to be associated with fewer heart attacks—that nondrinking patients start drinking. The risk levels of individual patients must always be kept in mind. Physicians must also make an effort to follow up on patients who are working toward specific goals. Physician persistence is crucial when patients continue self-destructive behaviors. In this connection, a question was raised as to how a physician should deal with a patient under treatment for chronic obstructive pulmonary disease who refuses to give up smoking.

The work group stressed that physicians themselves should set examples of a healthy lifestyle. The concept of the physician as a role model emerged repeatedly from the work group's discussions as a subtle means of influencing patients, and even fellow physicians, to make changes in their lifestyles. Involvement in voluntary organizations such as the American Heart Association, the American Cancer Society, and medical societies, the discussants indicated, can help extend physicians' knowledge of the risks and consequences of particular lifestyles as well as give evidence to the community of their own adoption and support of health promotion.

Numerous other professionals, such as nurses, health educators, and social workers, also have the capability of carrying out activities to promote health. Even though the physician is uniquely positioned to set his or her practice priorities, extensive personal involvement in health promotion is not cost effective. The physician, however, can marshal his or her staff to stimulate the participation of other professionals, the patient, and often the patient's family in health promotion activities. The work group gave some consideration to the need for a separate profession devoted to disease prevention and health promotion, although no consensus was reached on this point.

Within the community, it was noted that the physician can be effective as the leader of a health promotion team that includes other professionals who may be more skilled in specific areas of health promotion or in working with specific populations. Physicians who are familiar with community resources are in the best position to exploit opportunities for health promotion, both with

individual patients and with the community as whole. The workshop discussants viewed the physician as a driving force in advocating, planning, and conducting a wide range of health promotion efforts in schools and other forums. Health fairs, media events such as radio talk shows, and community meetings provide opportune vehicles to the physician for health promotion. By involvement in the work of voluntary organizations that seek to promote health or in organized medical components such as county, State, and national medical societies and associations, physicians can help promote the health of the general populace.

As a proponent of health promotion, the physician must be willing and committed to assessing his or her own practice in terms of its effectiveness in promotion of the health of patients. At a minimum, the physician must avoid actions that do not promote health, such as overprescribing, admitting patients to the hospital on the basis of marginal indications, and so forth. Cost considerations may persuade physicians to delegate health promotion to others within or outside their own practices. For instance, the collection of information regarding a patient's lifestyle could be conducted with minimum additional time and cost to the physician by means of a questionnaire administered by other personnel. In the past, nurse practitioners assumed a substantial role in eliciting patients' histories and relating these and physical examination results to the major issues of health promotion. However, their assumption of this role turned out to be economically unfeasible because such services were not reimbursable.

The work group participants pointed out that physician attention or lack of attention to health promotion is undeniably a function of economics. Dollar reimbursement for physician time spent on health promotion is presently unavailable. A corollary problem is that in many instances the populations most at risk are the ones least likely to be seen by a physician except for acute care. For example, because the Medicaid population tends to be crisis-oriented, little opportunity exists for early health promotion. Ironically, some practice settings with clear economic incentives for preventing disease, for example, health maintenance organizations, have limited opportunities for health promotion. In their efforts to hold down utilization rates, they have tended to reduce the opportunities for educating enrollees in preventive behaviors. Ways to increase patient education without incurring the costs associated with ordinary utilization should be devised.

Areas for Future Emphasis

In order to move toward national priorities in the area of health promotion, further attention needs to be given

to the following conclusions of the work group.

- The needs of patients for health improvement through lifestyle change are varied, and physicians should be important motivators both of individuals and the community at large.
- One of the most important roles that a physician can play in health promotion is that of a behavior model for patients and the community.
- Throughout all phases of their medical education, medical students must be encouraged to develop the skills and attitudes needed for effective health promotion. The students' involvement in exemplary programs, sponsored by their medical schools, to promote

their personal health would be the most effective means to this end.

- To achieve the greatest payoffs in health promotion, the physician must set priorities in terms of time and effort. This ordering of priorities may involve triage to other professionals within a clinic setting, to self-help groups, or to other activities within the community.
- Early intervention by the physician to promote health is desired. Typically, such intervention will take the form of information-sharing and counseling, along with continuous followup of patients who are working toward specific health promotion goals.
- Innovative approaches to the financing of health promotion services are needed.

Prevention in Medical Education: Preclinical Content

F. Marian Bishop, PhD, MSPH

In discussions of prevention education in the first 2 years of medical school, the following issues emerged:

- targeted skills and knowledge
- curricular content
- instructional methods
- curricular opportunities
- responsibility for instruction
- faculty attitudes.

General Discussion

The participants were asked to identify appropriate and feasible content, instructional methods, and resources necessary to incorporate disease prevention and health promotion effectively into preclinical medical education. It was pointed out, however, that references to "clinical" and "preclinical" teaching are somewhat artificial and perhaps outmoded divisions of instructional levels.

Typically, instruction in the basic sciences during the first 2 years of undergraduate medical education, commonly called the preclinical years, occurs with little or no patient contact. Extensive exposure to patients and clinician role models is generally reserved for the third and fourth years, usually called the clinical years. The participants agreed that although disease prevention can be taught didactically and by course work in epi-

demology and biostatistics in years 1 and 2 and then by application of concepts in case-management exercises during years 3 and 4, this is not the most desirable manner of presentation.

Many students desire an active, medically oriented experience at the earliest stages of medical education. Most of the discussants agreed that students comprehend and retain more information when learning is linked with the care of patients. Thus, a strictly concentrated cognitive focus in the preclinical years is not an ideal introduction to preventive medicine. Students should have some experimental learning with patients and the promotion of health throughout all 4 years of training. Ideally, disease prevention should permeate the entire sequence of medical education. In reality, at present little preventive medicine teaching is required in medical school curriculums.

Areas of prevention and health promotion considered important in the first 2 years of medical education include a foundation in epidemiology, biostatistics, and some aspects of the social and behavioral sciences. These areas convey needed terminology and basic tools for later understanding and application of preventive medicine concepts. More generic abilities to be acquired include skill in critical reading of the literature, in analyzing case reports on specific patients, and in case management and leadership. Instilling information-seeking behavior and developing interviewing skills were also considered vital areas for future educational emphasis. Students must become attuned to ferreting out the historical antecedents of potential problems,

moving beyond the patient's presenting complaint to exploration of areas that may constitute future health concerns. An awareness of community health problems and the appropriate role of prevention in the community is also required.

The participants found it difficult to separate the discussion of curricular content from how the content should be presented. They agreed that preventive medicine concepts should be taught in reference to specific cases. For example, the first year of basic science curriculum, which is built around disease states, should be augmented by preventive medicine data about health risks and lifestyle precursors of disease. These materials should be incorporated in an "ecumenical" or interdisciplinary manner, as opposed to a course block approach. Faculty who are interested and skilled in preventive medicine could work and coordinate with other disciplines to accomplish this in the first or second years.

Complementary requirements could be established for fourth-year case studies to involve basic science teachers. Basic science faculty and the traditional science curriculum might become a more relevant and continuing part of the total medical education experience if broader faculty contact with students were encouraged.

The case history approach emphasizing threats to normalcy and ways in which specific diseases can be prevented was considered a teaching method that helps students achieve a more balanced attitude while effectively conveying skills and knowledge. Early exposure of students to the health needs of various community groups and to community health resources was deemed a valuable instructional approach. Tours of local public health facilities and industrial hygiene settings would be one way by which students could obtain this exposure.

Providing students with observation time in family practices that include preventive medicine was also thought to be an effective learning activity. First-year students are experiencing this approach at several medical schools, including Rush Medical College, Chicago. They are taking patients' histories and performing health education activities in the offices of physicians.

The discussants generally agreed that patient and community involvement contribute to positive attitudinal development and an increased propensity for practicing prevention. The case study approach presents cognitive information that facilitates the practice of prevention. Support was expressed for participatory, rather than passive, learning or reading in preparing a preventive medicine curriculum. Also, the discussants pointed out, student interest is captivated by having

real situations to assess and real clinician role models to emulate.

The case method approach was viewed also as optimal in teaching health promotion, with more emphasis on analysis of health habits than on medical symptoms and on appropriate interventions to influence patients' behavioral changes.

In discussing teaching methods, participants cited a few outstanding examples of innovative teaching programs for preventive medicine, particularly at the McMaster University School of Medicine in Hamilton, Ontario, and the Barrows System at Southern Illinois University. Both of these programs use a problem-oriented case management approach, focusing on the students' own health and the health of real or hypothetical patients.

It was posited that in addition to being highly effective the case method, including some exposure to community problems and sites, may not call for additional faculty and could possibly require less teaching time. Tradeoffs in teaching time were also suggested. Time could be transferred from epidemiology, physical diagnosis, clinical correlation, or other teaching into case presentations. Some participants, however, objected to this blurring of instructional responsibility.

Another method for conveying disease prevention concepts to students would be for medical schools to provide greater opportunities for faculty and students to promote their own health through exercise programs, nutrition education, health screening, and smoking cessation. Concern with personal health and fitness, reinforced by even a small group of faculty, would assist students in placing these activities in a clinical context, possibly in the form of extracurricular experiences.

A related exercise would be for students to compile a history of what they do to promote their own health. An elective course in stress prevention and control was also suggested. Further, students might be asked to provide information on personal health habits and hygiene to elementary or high school classes.

Some current trends in society and medicine may help to incorporate disease prevention and health promotion into undergraduate medical education. For example, there is increased awareness of and interest in activities related to health promotion and enhanced fitness by both the general public and many medical students. The field of medicine is reacting somewhat belatedly to this concern with fitness and wellness rather than illness. However, in the interest of cost containment, ways must be explored to accommodate the disease prevention-health promotion movement.

It is also important to recognize that preventive interventions are no longer chiefly applicable to the

chronic infectious diseases of the earlier part of this century. They must now be related to the major degenerative diseases that present more prevalent threats to health. The implication is that physicians (primary care providers, cardiologists, oncologists, and so on) have to assume a more active and important role in disease prevention and health promotion.

Given these trends, curricular opportunities for including preventive medicine materials would appear to be abundant. Changing the structure of medical education, however, is a slow process. A perceived deterrent to change is the continued expenditure of Federal funds on clinical-disease-oriented research to the virtual exclusion of prevention. Medical school educators, and thus medical school teaching, are heavily influenced by research priorities and particularly by research funded by the National Institutes of Health. The Federal Government has not offered evidence of a financial commitment to preventive medicine.

Although money is one of the bigger incentives for medical school departments to alter curriculums, consideration of the trends mentioned also presents some opportunities for curricular change. Medical school administrators should be encouraged to reconsider the mission of the schools and to examine ways in which prevention fits into the mission. Institutional pressure to add preventive material or increase curricular time devoted to prevention may be inspired by the continuing focus of the general public on healthier living and possibly by increased public demands on practicing physicians. Financial restructuring of third-party payments for the provision of preventive services would be another major incentive to reconstituting the role of prevention in medical education.

Preparation for national boards, licensure, and certifying examinations is another important consideration for medical schools, faculty, residents, and students. Preventive medicine content must be present in these examinations in order to be competitive with other medical disciplines and, more importantly, as a reinforcement to offering, teaching, learning, and later applying preventive medicine concepts.

It would be helpful if more medical school faculty would acknowledge prevention and endorse it by incorporating it into their course offerings and student interactions. As role models, their attitudes are crucial to engendering student attitudes. It was pointed out that preventive medicine faculty may have to be "salesmen" to spread the prevention message to other faculty.

Prevention and health education are activities basic to the practice of medicine regardless of specialty orientation. If strong and clearly identifiable departments of prevention and community medicine are not

available, the activities become diffused and are often lost. The lack of departmental focus for preventive research and curriculum development poses a real problem to efforts to improve the prevention-related skills and knowledge of all medical students.

Areas for Future Emphasis

Work group participants outlined the following recommendations for future consideration and action:

- Disease prevention and health promotion are basic to the practice of medicine regardless of specialty orientation. Strong departments of community and preventive medicine within the medical school are needed to provide a focus for preventive medicine research and curriculum development. Relevant knowledge, skills, and attitudes should be built into the continuum of predoctoral medical education.
- Preventive medicine is a mission orientation that cuts across all medical disciplines. As such, it does not overburden, but rather it enhances the learning of basic and clinical sciences. Realignment of medical school curriculums to stress prevention need not require inordinate additional funding.
- Clinical material, including prospective and retrospective prevention, should be offered to students along with basic science material in the first years of medical school. Once introduced, coordinated reinforcement of preventive medicine material is needed throughout all 4 years of predoctoral medical education if the student is to later undertake prevention as an integral part of practice.
- The case study approach should be designed as a primary teaching method for preventive medicine. Case management usually entails future implications (what can be done) and retrospective considerations (what might have been done). Because health is individual and dynamic, a preventive approach—focused on consideration of past, present, and future conditions—could readily be spun around specific cases.
- Medical school faculty should become better informed about and trained in preventive medicine principles. There is an identified shortage of physicians properly prepared in preventive medicine, a shortage that could possibly become self-perpetuating.
- More emphasis on prevention is needed in medical licensure examinations.
- Activities, such as racquetball and stress control, sponsored by medical schools for faculty and students would contribute to personal involvement in and commitment to disease prevention and health promotion.
- Federal funding is needed to support basic and applied research in disease prevention and health promotion.

Prevention in Medical Education: Clinical Content

Peter L. Andrus, MD

Several important issues were addressed in the discussion of the work groups on clinical content. They fell into the following categories:

- educational objectives
- curricular content
- teaching methods
- faculty resources
- evaluation
- organizational and administrative arrangements.

General Discussion

Much of the work group's discussion reflected the sense that it is an ironic time for a national conference on Prevention and Medical Practice: The Role of Undergraduate Medical Education. Not only the opportunities for but also the difficulties in addressing the topic effectively have never been greater.

Public awareness of the need for preventive approaches to disease and for the promotion and maintenance of health is growing, and practicing physicians and medical students alike are expressing enthusiasm for prevention in medical practice. At the same time, medical education is faced with diminishing financial resources as government withdrawal from support of medical education and the impact of economic conditions on private sources of support combine to produce educational retrenchment. How can practicing physicians, medical students, faculties, government, and business and philanthropic institutions respond effectively?

Significant efforts have already been made to define the prevention component of undergraduate medical education. The Association of Teachers of Preventive Medicine and Boston University's Center for Educational Development in Health have collaborated in devising a competency-based approach toward defining educational objectives and content. This approach is founded on the present and future practice skills and knowledge that physicians might use in providing preventive services. The American College of Cardiology has set an enviable standard for other specialty groups in the work of its Conference on Prevention of Coro-

nary Heart Disease held in Bethesda, Md., September 1980.

Although it is not exhaustive, the following list of knowledge and skills certainly should be acquired in the core education of all medical students.

- ability to apply decision making and analytic techniques to problems in clinical practice,
- ability to read medical literature critically and thoughtfully,
- sufficient knowledge of and facility with the basic principles of epidemiology, biostatistics, and demography to be able to analyze targeted community or patient populations,
- ability to apply epidemiologic principles in terms of the patterns of health and illness observed in target populations served,
- knowledge of available community resources supportive of prevention programs,
- enough understanding of the current patterns of organizing and financing health care to assess their impact on providers and patients, and
- ability to work effectively with other health professionals to implement preventive and health promotion interventions.

Other areas to be addressed in medical education include the behavioral sciences, medical anthropology, medical history, and medical ethics as they relate to prevention. Although some of these topics already are included in medical education at the preclinical or clinical levels, the relative emphasis they might receive within a prevention-oriented curriculum and some possible approaches to teaching them in the clinical years would be departures from traditional medical education. For example, training of physicians to encourage health-promoting habits among children was discussed as a possible element of such a curriculum. Working with children in health promotion efforts may be important and could offer powerful educational opportunities for medical students and residents, but such a concept is foreign to present educational patterns.

A careful analysis of present curricular content is needed to assess what is being taught in relation to prevention and to identify opportunities within existing educational offerings to introduce additional prevention material. When efforts to integrate prevention into existing courses are undertaken, faculty must see this as an extension of teaching in their particular disciplines rather than a wresting away of "time and turf" by the teachers of preventive medicine.

One approach to this sort of effort is the use of the natural history of disease model as an integrating theme. Faculty from various disciplines can be involved in this approach, which moves in content from prevention issues through diagnostic and therapeutic approaches to long-term care and rehabilitation. Thus, the student gains a complete and comprehensive picture of an illness entity, with prevention as a logical starting point. Such an approach may be equally as valid in basic science course work as in clinical rotations.

The integrated approach generally was thought to have distinct advantages; however, the feasibility of implementing it successfully was questioned by some participants. Barriers presented by prevailing curriculums and attitudes were considered sizable, although not necessarily insurmountable. A crucial variable, however, seems to be the extent to which prevention can be integrated so that the various basic and clinical science departments will view it as part of their mission.

Varying degrees of success in integrating prevention into the curriculum were reported by work-group participants. Conjoint teaching by departments of community and preventive medicine with other clinical departments has not always proved effective. Depending on the specific form in which it occurs, students may view the prevention component as a superfluous add-on to the basic and more pressing requirements of clinical training, which continue to be taking histories, performing physical examinations, ordering and interpreting diagnostic tests, and conducting other tasks associated with the treatment of acute illness. At the same time, making the participation of prevention specialists available to clinical departments may represent a practical approach to enhancing the preventive element of clinical teaching, given the current realities of medical education.

One concept repeatedly discussed was the teachable moment. The educator must be able to recognize and capitalize on such moments when they occur. In addition, the overall curriculum development process should include identification of those points in medical education when prevention is most relevant and the design of appropriate educational experiences to meet prevention-related objectives.

Despite a consensus about the importance of creating such teachable moments, how or when to do so was less clear. Some were skeptical about the ability of faculty or the current medical school environment to provide such moments. Obvious difficulties exist in efforts to introduce prevention into the care of the acutely ill, hospitalized patient—prevention is largely theoretical when the patient is in special need of immediate treatment. Appropriately, students are more interested in the pathophysiology of disease at such moments; thus, prevention seems irrelevant to their primary concerns.

Participants disagreed about whether the inpatient setting, in which most clinical instruction takes place, is conducive to creating teachable moments for prevention. Some argued strongly that prevention could be presented effectively in the hospital after the acute-care crisis had passed in the context of (a) what might have been done to prevent the illness at hand or (b) by capitalizing on family members' receptivity to interventions that may prevent future crises.

Others argued that prevention teaching can occur only in settings intended for that purpose, and therefore success in teaching primary and secondary prevention depends on the availability of appropriate clinical settings oriented toward modeling such care. In this connection, it was suggested that the types of clinical sites available for teaching medical students should be expanded to include not only ambulatory care sites such as community health centers and outpatient clinics of hospitals, but also schools, occupational health settings, and nursing homes. Also, the role of other community agencies was emphasized for teaching skills in community diagnosis, working with community resources, and crossing professional boundaries. These differing perspectives were not resolved, and the availability of appropriate clinical settings for teaching prevention emerged as one of the groups' most critical, unresolved issues.

A related issue was the timing of prevention content during undergraduate medical education. Inclusion of preventive medicine topics in all 4 years of the standard curriculum, while preferred, was considered unlikely to occur.

Considerable difference of opinion emerged among participants over the relative importance of preventive input during the preclinical and clinical phases of the curriculum. One viewpoint was that a solid grounding in prevention during the preclinical years was essential to effective clinical instruction and that what was learned during the first 2 years should be reinforced during the clinical years. An equally emphatic view stressed the importance of introducing clinical content into the basic science course work, thus blurring the

traditional demarcation between preclinical and clinical education. Proponents of this position argued that the development of a clinical identity begins in the first year of medical school, and that clinical correlation conferences in basic science courses represented an excellent opportunity to introduce preventive issues. The possibilities for merging clinical and preclinical prevention content were thought to be limited only by the interest—and the creativity—of the faculty.

A final, disparate view emphasized that students generally would not be receptive to preventive issues until after substantial clinical core rotation experience, and that prevention-oriented teaching could be most effective only after students had acquired clinical experience.

The abilities and biases of the faculty were identified as perhaps the most critical factors affecting the presence or absence of prevention in clinical education. The number of faculty with appropriate training or interest in prevention was generally considered inadequate to provide needed instruction to third- and fourth-year students. Similarly, considerable importance was attached to the influence provided by clinical faculty as role models for the students. If students are to be encouraged to acquire preventive skills, in whatever specialty they select, it is crucial that prevention-oriented faculty are available as role models during clinical clerkships.

With appropriate faculty models as the key to implementing prevention-oriented clinical education, encouraging faculty members to integrate prevention into their own thinking and practice becomes a singular priority. The relative absence of incentives or motivators for faculty to do so was viewed as a serious barrier. Potential incentives might include the availability of research grants and other mechanisms (such as visiting lectureships or special chairs) for linking personal career development to prevention.

Additionally, the continuing education needs of faculty members should be addressed. Inservice training, summer institutes, and other approaches not disruptive of ongoing career responsibilities would be invaluable in this regard.

Another key area of discussion related to an awareness of students' motivational systems. The recurrent sense that prevention seems irrelevant to students is, in fact, a commentary on the present lack of motivation for students to focus on it. Since students are extremely sensitive barometers of the academic demands placed upon them, an examination or other evaluation methods would positively influence their performance on prevention course work. The lack of meaningful evaluation as a component of prevention teaching may lead

students to assign little priority to this material. While punitive approaches to motivating students were rejected as poor strategy, the importance of linking satisfactory performance on prevention content to academic progress in medical school was emphasized.

A final issue of importance to work-group members was the political and organizational barriers to implement a prevention curriculum. These barriers were thought to offer at least a partial explanation for past failures to adequately address fundamental issues in prevention educational objectives and content.

The distribution of power within medical schools and the bias of that power structure were perceived as major determinants of curriculum content and decision making. Turf guarding in the battle for curriculum hours usually has worked against prevention—a fact not lost upon students, with predictable effects on their attitude toward prevention.

Perhaps the most critical issue raised regarding the organization of preventive teaching was whether the locus of prevention should be maintained in a separate and distinct department of preventive medicine or dispersed through various clinical departments.

Although it was recognized that the precise approaches to this issue would vary among institutions, the baseline view was that a department dedicated specifically to prevention would be essential to teaching epidemiology, biostatistics, and other prevention-oriented subjects. Supplementally, cooperative teaching by preventive medicine faculty and their prevention-oriented colleagues in other clinical departments should link theory with practice. Some participants were concerned that this approach would work against an adequate integration of prevention into the clinical specialties. No final consensus was reached.

Areas for Further Emphasis

Of the many issues and questions raised during the discussions, the following suggestions for action by various groups and constituencies are among the most pertinent:

- Specialty professional societies should emulate the American College of Cardiology in creating descriptions of the prevention-oriented knowledge and skills required by practicing physicians in their respective specialties.
- Medical school faculties committed to prevention should analyze current curricular opportunities to enhance or expand the teaching of prevention. Emphasis should be given to clinical relevance, timing, use of appropriate teaching facilities and faculty role models, evaluation systems that measure student mastery and teaching effectiveness, and sensitivity to motivational incentives for both students and faculty.

- Students should maintain and expand their efforts to stimulate faculty and institutional responsiveness to prevention concerns.
- Government and private sector sources (business and

foundations) should maintain—or preferably increase—support for basic science and educational research and manpower training in support of prevention, especially in view of present economic difficulties facing medical education and society as a whole.

Prevention in Medical Education: Research and Faculty Development

Carolyn B. Robinowitz, MD

Expanding the knowledge base and motivating faculty development are two key—and interrelated—factors influencing the extent to which prevention becomes integrated into medical education and practice. As evidence in support of preventive intervention grows, so will the incentive to teach and practice such interventions. Further, the opportunity to conduct research is an important stimulus to faculty interest. Although a number of specific investigational needs can be identified, several broader issues, affecting not only the research agenda but also faculty development, need to be considered. Among these issues are:

- the nature of prevention research
- funding constraints
- mechanisms for priority setting
- institutional commitment
- organizational location
- application of research findings.

General Discussion

Prevention research, in many respects, is substantially different from that conducted in other specialty areas. Much of the research directed toward prevention rather than treatment of disease requires study populations, protocols, interventions, and outcome measures with only limited resemblance to those typical of clinical trials designed to assess the efficacy of treatment methods. This is not to say that conventional biomedical research, in the laboratory or clinical setting, does not have prevention applications: the development of vaccines, diagnostic and screening procedures, and the identification of environmental health hazards contribute significantly to prevention efforts. But investigation of lifestyle factors in health and the design of strategies for promoting healthy behaviors among individuals and groups clearly demand different approaches from those most familiar to medical researchers. In addition, these studies frequently cut across traditional departmental lines within the medical school

and are multidisciplinary in a sense that requires redefinition of roles and relationships among physicians and other providers or members of the research team. These special features of some types of prevention research may operate to discourage the development of studies that are not amenable to investigation through more conventional medical research methods. Furthermore, since the best prevention studies tend to be longitudinal, frequently involving large numbers of subjects, this type of research is expensive and consequently difficult to fund.

The issue of funding was considered important by the work group participants not only in terms of research efforts but also as a factor influencing institutional and faculty interest in prevention. A number of participants agreed that when medical schools are facing a period of fiscal austerity, the biggest roadblock to introducing new material into the curriculum may be a shortage of funds. If support from endowments and government diminishes and schools become more reliant on faculty-generated, fee-for-service income, prevention may suffer a severe disadvantage in competing for faculty and curriculum time.

The nature of preventive medicine is such that it places less emphasis on direct clinical care, it is time-related rather than technology-related, and it does not include the types of services for which other specialties demand high fees. A department not generating income at a rate comparable to others is likely to be the first to feel the effects of budgetary cutbacks in the medical school.

Primary care specialties share this problem with preventive medicine. The result, in some cases, has been a decision to retain preventive medicine within a department of family practice for purely economic reasons. Prevention research dollars can offset some of these economic problems. However, research dollars in prevention—as in other fields—are currently declining, and this problem is exacerbated by the fact that prevention studies are likely to be more costly than others conducted in a shorter time frame and perhaps a more controlled environment. Nonetheless, sources for support of prevention do exist. Both foundations and vol-

untary health organizations have demonstrated their interest in this area. The American Cancer Society, for example, conducted an in-depth study of appropriate cancer prevention and early detection services.

One alternative funding source is community contracts. Most cities and counties purchase services, and medical schools—through departments of community and preventive medicine—can provide many of these services. In the past, medical schools have tended to resist such arrangements since they can involve the schools in local politics or make the schools dependent on politically motivated decision making. However, economic considerations are making such contractual arrangements more attractive.

Not only local government but also private institutions, such as an apartment building for the elderly, may provide an opportunity to generate income for medical schools and provide a community-based teaching setting as well. One drawback to these arrangements is that the sources of support for community programs may also be subject to budgetary cutbacks, and they do not guarantee long-term funding for prevention-oriented education.

Career development awards are another means of providing financial support for prevention in medical education. Programs like that in preventive cardiology sponsored by the National Heart, Lung, and Blood Institute (NHLBI) are an important source of support for prevention faculty and should be replicated in other specialty or health problem areas. One interesting approach might be to make awards to “models” of preventive practice that were created by a team, rather than a single faculty member. Such an approach has the advantage of overcoming the intense competition that generally exists among departments in search of funds and that tends to demoralize efforts to integrate curricular content and teaching. Without an economic rewards system of some type, faculty cannot be expected to accord prevention the attention it deserves.

Another strategy for departments of preventive medicine is marketing to business and industry. Health promotion programs are receiving considerable attention as benefits to employees, and creative marketing of these programs by departments can produce the same kind of patient source income generated by other clinical departments. As in other forms of linkages between the profession and business and industry, caution must be observed to ensure that the integrity of the medical profession is not compromised.

Related to the issue of funding is that of setting priorities for the allocation of resources available for prevention research. Establishment of a formal mechanism appropriate for conducting a national priority-

setting process was discussed as important to assuring that research reflects the most urgent national needs. Determination of who should be included in this process or in what form it should be institutionalized was identified as an issue for further consideration, but some options were noted.

The creation of a National Institute of Prevention within the National Institutes of Health (NIH) was proposed as a way to insure that prevention receives adequate consideration in the allocation of national resources for health research. However, the practicality of such a proposal was questioned. Not only do budgetary constraints argue against the advisability of this approach, but the mandate of a prevention institute would inevitably overlap with that of other institutes where significant prevention research is occurring. It is possible that the end result of isolating prevention from other established health priorities might be a weakening of the overall prevention research capability. A less radical step might be the formation of a national council on prevention research, also within the framework of the NIH, which could provide leadership for prevention research planning and coordination but without the additional costs or other problems associated with setting up a separate institute.

As an alternative to a federally created structure for setting prevention research policy, professional societies could voluntarily establish a consortium that might function in this capacity. Properly constituted, such a group would include not only the medical specialties but it also would reflect the multidisciplinary nature of prevention research and intervention.

Whether a medical school actively moves to incorporate prevention into its curriculum depends largely on the interest and commitment of the medical school dean and other influential people. Particularly since ideological opposition, rather than technical problems of implementation, may be a major impediment to curricular change, support from top leadership is essential. In schools governed by a board of trustees or regents, support of that board is needed. At the behest of a governing board, or as a personal initiative, the medical school dean is in a position to request the interdepartmental coordination and cooperation needed to develop and implement prevention objectives and learning activities. Achieving those objectives will depend on strong leadership at the faculty level, as well, and in some instances it may be necessary to recruit this leadership in the form of new faculty.

One of the most frequently mentioned reasons for the limited attention to prevention in current medical education is the lack of appropriate orientation or training among faculty. In instances where resistance to preven-

tion is strong among tenured faculty, the existence of the tenure system itself may be a stumbling block to increasing emphasis on prevention in the curriculum. Lack of commitment by senior faculty deprives prevention of needed leadership and can actively contribute to a lack of interest among students for whom these same faculty are role models and mentors. Financial incentives, visiting lectureships, and other motivators are required to offset established attitudes and practices among faculty.

Even among faculty interested in prevention, lack of adequate background may hamper effective teaching in this area. Creating opportunities for education in prevention-related subjects is a critical need if current medical school faculty are expected to participate in re-orienting the curriculum to place greater emphasis on this material. At present such opportunities are limited and need to be expanded.

Various approaches to providing this training must be considered. Short-term postdoctoral training, as opposed to the classic 3-year preventive medicine residency, is one such approach. Programs already exist in which recently graduated physicians are engaged in training with young PhDs in relevant fields—an approach that may be particularly well suited to prevention with its multidisciplinary dimensions.

Providing prevention training without interrupting ongoing career commitments is another key to gaining participation in prevention programs. Summer institutes such as the Minnesota epidemiology program may be models for other prevention training programs.

The issue of where responsibility for prevention teaching should be lodged within the medical school arose in this as well as in other work groups. The advantages to having the traditional clinical departments integrate prevention were recognized. This integrated approach should minimize the potential for emergence of separate worlds of therapeutic and preventive medicine and enhance the prospects for the recognition and incorporation of prevention as a basic element of all clinical practice.

On the other hand, it may be that—in the current medical school environment—departments of preventive medicine are maintaining the viability of the concept of prevention at a time when it might otherwise disappear. The existence of separate departments of preventive medicine was also defended on the grounds that there are both research and application aspects of preventive medicine, as currently defined, that distinguish it from other medical disciplines. Epidemiology and biostatistics may be viewed as related sciences appropriately organized into a separate department. The communitywide application of prevention knowledge is

another distinguishing feature of preventive medicine, particularly as it is practiced in occupational and public health.

The application of prevention knowledge was another issue discussed in terms of its relative priority vis-a-vis the conduct of additional research in prevention. While there was agreement that additional research is needed, particularly in the areas of outcome and cost effectiveness of prevention and health promotion programs, the application of the knowledge already available was considered of equal concern. Experience to date indicates that existence of knowledge does not guarantee its application in ways that might logically be expected. The gap between prevention knowledge and practice must be closed.

Areas for Future Emphasis

The following areas were considered particularly important for further examination if prevention research and faculty development are to be strengthened.

Developing sources of support for prevention research. Opportunities for gaining support of prevention research from diverse sources—including industry, voluntary organizations, and foundations—must be explored. Federal support also is needed and should be expected if prevention is a national priority. However, the limitations of Federal funding are recognized and other potential sources of support must be identified and persuaded to support needed research.

Establishment of priorities for prevention research. Since both time and funding are limited, it is imperative that we establish priorities for support of investigations. To do so requires both criteria and mechanisms for applying those criteria.

Building faculty support for prevention. Adequate faculty, trained and committed to prevention, are obviously essential to prevention-oriented medical education. Career development awards and other incentives are needed to encourage faculty in this direction. Approaches to providing faculty continuing education in prevention need to be developed and tested.

Organizational focus for prevention research. The benefits of retaining a separate department of preventive medicine to serve as the focal point for prevention-related research need to be examined and tailored to individual institutional needs.

Application of research findings. The value of prevention research depends on the extent to which it is used. Methods for insuring that research findings are disseminated to educators and practitioners alike are needed; such insurance depends on the successful implementation of the broad range of recommendations drawn up by the symposium work groups.